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Calf Note #222 – Calf diarrhea affects future productivity

Introduction

The manner in which we raise calves during the first few months has a long-lasting influence on their health and productivity. Several studies have shown that incidence of disease early in life can slow growth, delay age at which calves are ready to breed and even reduce the amount of milk produced in their 1st lactation. A recent study in the Journal of Dairy Science by researchers at Michigan State University again documents the negative effects of preweaning disease on future productivity in Holstein dairy calves and reemphasizes the importance of excellent management of young calves.

The Research

The researchers monitored calves born on one large dairy farm in Michigan, located in the central U.S. The farm had an average of 3,500 lactating Holstein cows, that averaged 12,250 kg/cow. Calves were raised according to normal, modern feeding conditions until breeding (>12 mo of age and >363 kg), calving () and into first lactation. A total of 4,489 records were originally collected for the study and data from the dairy's DairyComp 305 database were used. Data from bull calves were excluded, as were incomplete records or inaccurate records.

Records were maintained throughout the rearing period and into the first lactation. Average daily gain at weaning was calculated based on birth BW and BW at weaning. Ages at 1st insemination, 1st successful insemination, age at calving, pregnancies per insemination and 305 d ME were used. Calves that had bovine respiratory disease (**BRD**), diarrhea, BRD + diarrhea, and "any disease". Measurement of disease was collected only until weaning (70 d of age).

The Results

Overall, the incidence of BRD, diarrhea, and any preweaning disease were 21.4%, 40.7%, and 53.6%, respectively. Average ages for 1st events were 33, 9 and 9 days of age, respectively, indicating that diarrhea generally occurred earlier in life and BRD tended to occur slightly later. Though morbidity preweaning was >50%, calf mortality was <2%.

Preweaning disease increased the risk that calves would not reach breeding or 1st calving. If a calf had BRD, it was about 14% less likely to reach breeding. On the other hand, diarrhea did not have a marked effect on whether or not a calf would reach breeding or if the calf would reach 1st calving.

Age at 1st insemination tended to be higher when calves had BRD (407 vs. 406 d of age), and BRD + diarrhea (408 vs. 406 d), but not by diarrhea nor any disease. Calves became pregnant at an older age if they had diarrhea preweaning (431 vs. 426 d of age) and any disease (431 vs. 424 d). Age at 1st

calving was older when calves had BRD (704 vs. 699 d), diarrhea (704 vs. 697 d), BRD + diarrhea (708 vs. 699 d), and any disease (704 vs. 696 d). Calves with a history of BRD, diarrhea, BRD + diarrhea, or any disease prior to weaning calves at an older age than calves without these diseases, though the differences were only 4 to 9 d.

When calves were reported to have diarrhea prior to weaning, they produced an average of 325 kg less 305d ME milk in their 1st lactation.

Summary

Similar to many other studies, this interesting work from Michigan State University indicates the importance of calf health to future productivity of dairy heifer calves. Investing in excellent nutrition, progressive management programs and careful health monitoring will definitely pay dividends by allowing heifer calves to express their genetic potential for milk production when they enter the milking string.

References

Abuelo, A., F. Cullens, L. Brester. 2021. Effect of preweaning disease on the reproductive performance and first-lactation milk production of heifers in a large dairy herd. J. Dairy Sci. 104 (In Press). <https://doi.org/10.3168/jds.2020-19791>.